NOTICE OF CHANGE

REVISION LETTER B

EFFECTIVITY MODEL	SERIAL	REV'D. SHEET	COORD. DOC.	REMARKS
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B16

25 sheets

	NAME	DATE		
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Approved	J. B. Mumme	8-9-58	TYPE ACCEPTANCE TEST	
Approved	A. L. Koprivnikar	9-12-58	TITLE Model - 205 - Instrumentation (Telemeter) System - Final	1033878
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1.0 SCOPE

1.1 This specification describes the minimum standards of performance for the acceptance test of an Instrumentation (Telemeter) System.

1.2 The telemeter system shall be tested to this specification after completion of systems bench checkout and/or immediately prior to shipment to field test facilities, and/or upon completion of field test facility checkout prior to flight.

2.0 APPLICABLE DOCUMENTS

2.1 Missile Systems Division one million series major assembly, wiring diagram, and reference schematic drawings applicable to the vehicle telemeter system under test.

2.2 Reference Documents:

The applicable vehicle instrumentation assignment list (previously known as instrumentation schedule), and the FM subcarrier channel tolerance table are to be used for reference purpose only, and are not to be considered as part of this specification.

3.0 SYSTEM REQUIREMENTS

3.1 Power Requirements:

All instrumentation (Telemeter) system power voltages as measured within the instrumentation system, shall be within the following design tolerances:

3.1.1 Primary Voltages (±15%) - Input to the "X" Package.

A. Normal Values:

(1) 28V DC ±15% or a value prescribed by applicable design drawing.

(2) 115V rms (2000 cycle) ±15% or a value as prescribed by applicable design drawing.

(3) 115V rms (400 cycle) ±15% or a value as prescribed by applicable design drawing.

3.1.2 Secondary Voltages (± 10%) - Produced within the "X" Package.

A. Normal Values:

(1) 150.0 VDC ± 10% or a value prescribed by applicable design drawing.

(a) 150.0 VDC Regulated Voltage shall be 150.0 V ± 2%.

(2) 250.0 VDC ± 10% or a value prescribed by applicable design drawing.

(3) 30 VDC ± 10% or a value prescribed by applicable design drawing.

(4) +20V and -20V ± .12 volts or a value as prescribed by applicable design drawing.

(5) 6.3VDC ± 10% or a value as prescribed by applicable design drawing.

3.2 Information Transmission Link:

3.2.1 Radio Frequency (RF) Link:

3.2.1.1 Power Output:

The telemeter R.F. Power shall be supplied to a nominal 50 ohm R.F. load, antenna, or equivalent loading device. The R.F. Power shall be within the following design tolerances:

A. For a 2 watt R.F. System, a minimum output of 1.7 watts.

B. For a 10 watt R.F. System, a minimum output of 8 watts.

C. For a 25 watt R.F. System, a minimum output of 20 watts.

3.2.1.2 Frequency Deviation:

The radio frequency deviation of the FM Transmitter shall be no greater than ± 125 KC (effective peak) and no less than ± 105 KC when the following subcarrier systems are used.

(1) FM/FM System: The subcarrier pre-emphasis shall be: Channel 14 and Channel 15 twice the RMS value of Channels 4 to 13 ± 20% and Channels 16 to 18 three times the RMS value of Channels 4 to 13 ± 20%. The RMS values of each of Channels 4 thru 13 shall be within ± 10% of the average values of Channels 4 thru 13. These values apply to the subcarrier center frequencies and without amplitude modulation of the

subcarriers. If there are less than 8 subcarrier channels, each channel shall be set approximately equal.

(2) Combined FM and PWM subcarrier system: total deviation shall be no greater than ± 125 KC and the PWM subcarrier shall deviate the R.F. carrier no greater than ± 45 KC.

3.2.1.3 Frequency:

(1) The center transmitter frequency shall be within 0.01% of the assigned frequency.

3.2.2 Airborne Tape Recorder:

Each recorder shall be tested for proper operation by the application of the total scheduled subcarrier bus to the recorder track. The subcarrier bus shall be recorded for the full tape capacity of the recorder.

3.2.3 Long Line Instrumentation to Ground Tape or Oscillograph Records:

Each recorder shall be tested for proper operation by the application of the subcarrier signal to actual or simulated line lengths to be incorporated in the system. The subcarrier bus shall be recorded for a sufficient length of time as designated by the test engineer to determine proper sensitivity, noise level and speed characteristics of each recorder.

3.3 Subcarrier Channel Operation:

3.3.1 Continuous Voltage Controlled Channels (FM)

3.3.1.1 Each channel shall be tested by the application of either simulated or actual transducer sensing or by application of pre-determined channel calibration stimuli. An increase in the stimuli (to the transducers) shall cause a decrease in the oscillator frequency. The subcarrier frequency shall be center frequency (fc) + 45 ± 5% of channel bandwidth for full scale minimum data inputs and shall be center frequency (fc) -45 ± 5% of channel bandwidth for full scale maximum data inputs. Mid scale data inputs shall provide center frequency ± 3% of channel bandwidth.

3.3.1.2 If an inflight calibrate (3 point)is provided for the channel, the plus calibrate condition shall deviate the oscillator frequency to center frequency (fc) +45 ± 5% of bandwidth and the minus calibrate condition shall deviate the oscillator to fc -45 ± 5% of bandwidth and the calibrate zero condition shall provide center frequency (fc) ± 3% of bandwidth. Refer to exceptions of 3.4.2.

3.3.1.3 The output noise of the discriminated signal shall be less than 1%peak to peak of full scale output.

3.3.2 Commutated Voltage Controlled Channels (FM)

3.3.2.1 The commutator speed shall be within ± 20% of the rated speed.

3.3.2.2 The oscillator frequency shall be center frequency (fc) -45 ± 5% of channel bandwidth for full range maximum data inputs and shall be center frequency (fc) +45 ± 5% of channel bandwidth for full range minimum data inputs and mid range data inputs shall provide center frequency ± 3% of bandwidth. The synchronizing signals shall deviate the oscillator beyond the RDB Channel limits by at least 5% but no more than 20% of bandwidth. If an inflight calibrate (3 point) is provided for the commutated channel, the plus calibrate condition shall deviate the oscillator frequency to center frequency (fc) -45 ± 5% of bandwidth, the ½ calibrate condition shall provide center frequency (fc) ± 3% of bandwidth and the zero calibrate condition shall deviate the oscillator to fc + 45 ± 5% of bandwidth. Refer to exceptions of 3.4.2.

3.3.2.3 The output noise of the discriminated signal shall be less than 1% peak to peak of full scale. All data points and calibrate points shall be clearly distinguishable from one another and be flat ± 3 db over a minimum of 2/3 of a data channel period.

3.3.3 Continuous "Dual Loop" Channels (FM & AM)

3.3.3.1 Each channel shall be tested by the application of either simulated or actual transducer sensing or by application of pre-determined channel calibration stimuli. An increase in in the stimuli (to the transducer) shall cause an increase in the oscillator frequency. If an inflight calibrate (3 point) is provided for the channel, the plus calibrate condition shall deviate the oscillator frequency to center frequency (fc) + 35 ± 2.5% of bandwidth and the minus calibrate condition shall deviate the oscillator to fc - 35 ± 2.5% of bandwidth and the calibrate zero condition shall provide center frequency (fc) ± 3% of bandwidth. Refer to exceptions of 3.4.2.

3.3.3.2 The output noise of the discriminated signal shall be less than 1% peak to peak of full scale output.

3.3.3.3 Where amplitude modulation is employed, the oscillator output amplitude shall not decrease more than 30% due to the modulation.

3.3.4 Commutated "Dual Loop" Channels (FM)

3.3.4.1 The oscillator frequency shall remain within the limits of the subcarrier channel tolerance table for full range inputs except the deviation for synchronization pulses shall exceed the limits by 5% minimum but shall not exceed the limits by more than 20% of bandwidth. If an inflight calibrate (3 point)

is provided for the channel, the plus calibrate condition shall deviate the oscillator frequency to center frequency (fc) + 35 ± 2.5% of bandwidth and the minus calibrate condition shall deviate the oscillator to fc - 35 ± 2.5% of bandwidth and the calibrate zero condition shall provide center frequency (fc) ± 3% of bandwidth. Refer to exceptions of 3.4.2.

3.3.4.2 The output noise of the discriminated signal shall be less than 1% peak to peak of full scale output and the output shall be flat ± 3 db over 2/3 minimum of each data channel period.

3.4 Calibration Data - For Data Reduction

3.4.1 Each subcarrier channel shall be calibrated (8 point calibration minimum) with its associated transducer or pickup or with a simulated signal prior to making the final system tests.

3.4.1.1 The calibration data shall be included in a SOCR Book and logged as "test performed" prior to delivery to the Data Reduction Dept. for approval. This data is considered as Original Calibrate Data & shall be to the provisions of 3.3.

3.4.2 Calibration Data Changes

3.4.2.1 A shift from original calibrate of 10% of bandwidth for dual loop oscillator frequencies and 5% of bandwidth shift of voltage oscillator frequencies can be compensated by data reduction facilities and is therefore not cause for rework. Some change in sensitivity and some frequency shift from the original calibrate may be experienced due to intra package and inter system wiring capacities and/or power voltage variations which cannot be simulated at original calibrate. A continual frequency drift due to time alone of an oscillator is indicative of a faulty oscillator and does require rework. This test may be performed, utilizing the 3 point inflight calibrate measurements.

3.4.2.2 A 1% of full scale change in linearity from the linearity at original calibrate is the limit of change allowed to properly reduce the data without excessive error. This test may be performed utilizing the 3 point inflight calibrate measurements.

3.5 Automatic Calibration System - Where Applicable

3.5.1 All calibrate operations should occur automatically in sequence, by order, per applicable drawing.

3.6 Hermetic Seal

3.6.1 Hermetically sealed unit should be subjected to an internal pressure at 15 psig He and submerged in water for five minutes. There shall be no leakage - no visible (.020" diameter) bubbles during the five minute period. This test may be performed prior to installation of the electronic components if desired.

3.7 Environmental Test

3.7.1 Environmental testing of the system shall be accomplished as prescribed by the design organizations of the Telemetering Department in accordance with the attached environmental test supplements.

NOTE: Subassembly (component) "spares" or subassemblies for late instrumentation changes may be tested separately from the system without requiring a retest of the system. A subassembly removed from a tested system will not require a retest for use in another system of equal environmental requirements unless rework has been performed. Such an "out-of-station" test shall be to the same provisions of this specification.

3.8 Deviation for Specifications:

Any deviation from this specification may be approved only by the originating design-responsible department and its designated assignees. Such deviations shall be issued in the form of Engineering Orders or similar change documents.

4.0 QUALITY CONTROL

4.1 Quality Control shall inspect the telemeter system assembly (ies) to insure a high quality of workmanship, conformance to legal drawings and will verify that all provisions of this ATS (using the appropriate ATP) are complied with. The assembly (ies) shall physically bear proof of the successful completion of this acceptance test by means determined by the Quality Control Department.

5.0 PREPARATION FOR DELIVERY

Does not apply.

6.0 NOTES

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #101 (No Environmental Test Required)

A.1 Purpose

A.1.1 This supplement sheet provides a means and describes the intent to specify "no environmental test is required" on the instrumentation system or electronic subassemblies.

A.2 Scope

A.2.1 This sheet becomes a part of the attached document if specified (whenever the "dash" number "101" accompanies the ATS number).

A.3 Requirements

A.3.1 Test Deviations

A.3.1.1 Environmental tests will not normally be performed on the system or subassembly if -101 is specified. A unit tested to the requirements of one or more of the other supplement sheets (ie: -103, -104, etc.) does not disqualify the article for use in a "no environmental test" system.

A.4 Quality Assurance Provisions

A.4.1 Does not apply.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #103 - (5 g Vibration)

A.1 Purpose

A.1.1 This supplement sheet describes a 5 g vibration environment for a telemeter system or electronic subassembly and becomes part of the requirements of the attached document if specified (whenever the "dash" number "103" accompanies the ATS number).

A.2 Scope

A.2.1 The requirements are divided into two types of vibration environment: Type A - for white noise, and Type B - for sinusoidal vibration. The type of vibration is specified by the letter "A" or "B" or "A,B" following the number "103" (ie: --103A, -103B, -103A,B).

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified

A.3.1.1 Type A: Random noise vibration tests of 5 g rms $^{+20}_{-0}$% at 40 to 5000 cps shall be applied along the X, Y, and Z axes for periods of one minute each.

A.3.1.2 Type B: Sweep frequency vibration tests of 0.05 inch D.A. displacement at 20 to 45 cps and 5 g peak $^{+20}_{-0}$% in the 45 to 2000 cps range shall be applied along the X, Y, and Z axis. The frequency sweep shall be automatic with a total time of two to three minutes for each plane.

A.3.2 Test Conditions:

A.3.2.1 External power shall be utilized during the test. External instrumentation shall be simulated during the test. Tests shall be so conducted that the commutators, if any, are not subjected to continuous running for periods of over five minutes.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from oscillographic records made during the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from the oscillographic records made during the test. Performance will be determined on the basis of general operation, spurious response and output noise.

A.3.4 Records:

A.3.4.1 Tests will normally be performed in three mutually perpendicular (X,Y,Z) axes but the tests may be reduced to one axis only with respect to any system or electronic subassembly as approved by either the Systems or Components Group Leader. System Test deviations will be highlighted in the Vehicle Engineer's Ship's Letter position of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the required tests are performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #105 - (10g Vibration)

A.1 Purpose

A.1.1 This supplement sheet describes a 10g vibration environment for a telemeter system or electronic subassembly and becomes part of the requirements of the attached document if specified (whenever the "dash" number "105" accompanies the ATS number).

A.2 Scope

A.2.1 The requirements are divided into two types of vibration environment: Type A - for white noise, and Type B - for sinusoidal vibration. The type of vibration is specified by the letter "A" or "B" or "A,B" following the number "105" (ie: --105A, -105B, -105A,B).

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified

A.3.1.1 Type A: Random noise vibration tests of 10g rms $^{+20}_{-0}$% at 40 to 5000 cps shall be applied along the X, Y, and Z axes for periods of one minute each.

A.3.1.2 Type B: Sweep frequency vibration tests of 0.05 inch D.A. displacement at 20 to 45 cps and 10g peak $^{+20}_{-0}$% in the 45 to 2000 cps range shall be applied along the X, Y, and Z axis. The frequency sweep shall be automatic with a total time of two to three minutes for each plane.

A.3.2 Test Conditions:

A.3.2.1 External power shall be utilized during the test. External instrumentation shall be simulated during the test. Tests shall be so conducted that the commutators, if any, are not subjected to continuous running for periods of over five minutes.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from oscillographic records made during the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from the oscillographic records made during the test. Performance will be determined on the basis of general operation, spurious response and output noise.

A.3.4 Records:

A.3.4.1 Tests will normally be performed in three mutually perpendicular (X,Y,Z) axes but the tests may be reduced to one axis only with respect to any system or electronic subassembly as approved by either the Systems or Components Group Leader. System Test deviations will be highlighted in the Vehicle Engineer's Ship's Letter position of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the required tests are performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #107 - (15g Vibration)

A.1 Purpose

A.1.1 This supplement sheet describes a 15g vibration environment for a telemeter system or electronic subassembly and becomes part of the requirements of the attached document if specified (whenever the "dash" number "107" accompanies the ATS number).

A.2 Scope

A.2.1 The requirements are divided into two types of vibration environment: Type A - for white noise, and Type B - for sinusoidal vibration. The type of vibration is specified by the letter "A" or "B" or "A,B" following the number "107" (ie: --107A, -107B, -107A,B).

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified

A.3.1.1 Type A: Random noise vibration tests of 15g rms $^{+20}_{-0}$% at 40 to 5000 cps shall be applied along the X, Y, and Z axes for periods of one minute each.

A.3.1.2 Type B: Sweep frequency vibration tests of 0.05 inch D.A. displacement at 20 to 45 cps and 15g peak $^{+20}_{-0}$% in the 45 to 2000 cps range shall be applied along the X, Y, and Z axis. The frequency sweep shall be automatic with a total time of two to three minutes for each plane.

A.3.2 Test Conditions:

A.3.2.1 External power shall be utilized during the test. External instrumentation shall be simulated during the test. Tests shall be so conducted that the commutators, if any, are not subjected to continuous running for periods of over five minutes.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from oscillographic records made during the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from the oscillographic records made during the test. Performance will be determined on the basis of general operation, spurious response and output noise.

A.3.4 Records:

A.3.4.1 Tests will normally be performed in three mutually perpendicular (X,Y,Z) axes but the tests may be reduced to one axis only with respect to any system or electronic subassembly as approved by either the Systems or Components Group Leader. System Test deviations will be highlighted in the Vehicle Engineer's Ship's Letter position of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the required tests are performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #109 - (20g Vibration)

A.1 Purpose

A.1.1 This supplement sheet describes a 20g vibration environment for a telemeter system or electronic subassembly and becomes part of the requirements of the attached document if specified (whenever the "dash" number "109" accompanies the ATS number).

A.2 Scope

A.2.1 The requirements are divided into two types of vibration environment: Type A - for white noise, and Type B - for sinusoidal vibration. The type of vibration is specified by the letter "A" or "B" or "A,B" following the number "109" (ie: --109A, -109B, -109A,B).

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified

A.3.1.1 Type A: Random noise vibration tests of 20g rms $^{+20}_{-0}$% at 40 to 5000 cps shall be applied along the X, Y, and Z axes for periods of one minute each.

A.3.1.2 Type B: Sweep frequency vibration tests of 0.05 inch D.A. displacement at 20 to 45 cps and 20g peak $^{+20}_{-0}$% in the 45 to 2000 cps range shall be applied along the X, Y, and Z axis. The frequency sweep shall be automatic with a total time of two to three minutes for each plane.

A.3.2 Test Conditions:

A.3.2.1 External power shall be utilized during the test. External instrumentation shall be simulated during the test. Tests shall be so conducted that the commutators, if any, are not subjected to continuous running for periods of over five minutes.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from oscillographic records made during the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from the oscillographic records made during the test. Performance will be determined on the basis of general operation, spurious response and output noise.

A.3.4 Records:

A.3.4.1 Tests will normally be performed in three mutually perpendicular (X,Y,Z) axes but the tests may be reduced to one axis only with respect to any system or electronic subassembly as approved by either the Systems or Components Group Leader. System Test deviations will be highlighted in the Vehicle Engineer's Ship's Letter position of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the required tests are performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #121 - (15 g Shock)

A.1 Purpose

A.1.1 This supplement sheet describes a 15 g peak shock environment for an instrumentation (telemeter) system or electronic subassembly and becomes a part of the requirements of the attached document if specified (whenever the "dash" number "121" accompanies the ATS number).

A.2 Scope

A.2.1 Does not apply.

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified:

A.3.1.1 A total of three successive 15 g $^{+20}_{-0}$% peak shock impulses shall be applied in each of six positions along three mutually perpendicular axes. The duration of the shock impulse shall be two to three milliseconds with the peak acceleration at one to two milliseconds.

A.3.2 Test Conditions:

A.3.2.1 The test article shall be operating prior, during, and after the shock test. External power shall be utilized.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from comparison of operation prior to and after the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from comparison of operation prior to and after the test. Performance will be determined on the basis of permanent damage and operation change caused by the test.

A.3.4 Records:

A.3.4.1 Normally, tests will be performed in each of six directions along three axes but the test may be reduced to three successive shocks in one direction (along axis of flight) for any system and/or electronic subassembly as approved by either the Systems or Components Group Leader. Systems test deviations will be highlighted in the Vehicle Engineer's Ship's Letter portion of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the tests were performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

B. 7-3-58

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #123 - (50g Shock)

A.1 Purpose

A.1.1 This supplement sheet describes a 50g peak shock environment for an instrumentation (telemeter) system or electronic subassembly and becomes a part of the requirements of the attached document if specified (whenever the "dash" number "123" accompanies the ATS number).

A.2 Scope

A.2.1 Does not apply.

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified:

A.3.1.1 A total of three successive 50g $^{+20}_{-0}$% peak shock impulses shall be applied in each of six positions along three mutually perpendicular axes. The duration of the shock impulse shall be two to three milliseconds with the peak acceleration at one to two milliseconds.

A.3.2 Test Conditions:

A.3.2.1 The test article shall be operating prior, during, and after the shock test. External power shall be utilized.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from comparison of operation prior to and after the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from comparison of operation prior to and after the test. Performance will be determined on the basis of permanent damage and operation change caused by the test.

A.3.4 Records:

A.3.4.1 Normally, tests will be performed in each of six directions along three axes but the test may be reduced to three successive shocks in one direction (along axis of flight) for any system and/or electronic subassembly as approved by either the Systems or Components Group Leader. Systems test deviations will be highlighted in the Vehicle Engineer's Ship's Letter portion of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the tests were performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #125 - (75g Shock)

A.1 Purpose

A.1.1 This supplement sheet describes a 75g peak shock environment for an instrumentation (telemeter) system or electronic subassembly and becomes a part of the requirements of the attached document if specified (whenever the "dash" number "125" accompanies the ATS number).

A.2 Scope

A.2.1 Does not apply.

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified:

A.3.1.1 A total of three successive 75 g $^{+20}_{-0}$% peak shock impulses shall be applied in each of six positions along three mutually perpendicular axes. The duration of the shock impulse shall be two to three milliseconds with the peak acceleration at one to two milliseconds.

A.3.2 Test Conditions:

A.3.2.1 The test article shall be operating prior, during, and after the shock test. External power shall be utilized.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from comparison of operation prior to and after the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from comparison of operation prior to and after the test. Performance will be determined on the basis of permanent damage and operation change caused by the test.

A.3.4 Records:

A.3.4.1 Normally, tests will be performed in each of six directions along three axes but the test may be reduced to three successive shocks in one direction (along axis of flight) for any system and/or electronic subassembly as approved by either the Systems or Components Group Leader. Systems test deviations will be highlighted in the Vehicle Engineer's Ship's Letter portion of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the tests were performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

B. 7-3-58

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #127 - (150g Shock)

A.1 Purpose

A.1.1 This supplement sheet describes a 150g peak shock environment for an instrumentation (telemeter) system or electronic subassembly and becomes a part of the requirements of the attached document if specified (whenever the "dash" number "127" accompanies the ATS number).

A.2 Scope

A.2.1 Does not apply.

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified:

A.3.1.1 A total of three successive 150g $^{+20}_{-8}$% peak shock impulses shall be applied in each of six positions along three mutually perpendicular axes. The duration of the shock impulse shall be two to three milliseconds with the peak acceleration at one to two milliseconds.

A.3.2 Test Conditions:

A.3.2.1 The test article shall be operating prior, during, and after the shock test. External power shall be utilized.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from comparison of operation prior to and after the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from comparison of operation prior to and after the test. Performance will be determined on the basis of permanent damage and operation change caused by the test.

A.3.4 Records:

A.3.4.1 Normally, tests will be performed in each of six directions along three axes but the test may be reduced to three successive shocks in one direction (along axis of flight) for any system and/or electronic subassembly as approved by either the Systems or Components Group Leader. Systems test deviations will be highlighted in the Vehicle Engineer's Ship's Letter portion of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the tests were performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

A.0 ENVIRONMENTAL TEST - SUPPLEMENT #129 - (200g Shock)

A.1 Purpose

A.1.1 This supplement sheet describes a 200g peak shock environment for an instrumentation (telemeter) system or electronic subassembly and becomes a part of the requirements of the attached document if specified (whenever the "dash" number "129" accompanies the ATS number).

A.2 Scope

A.2.1 Does not apply.

A.3 Requirements

A.3.1 Test Environment: Unless Otherwise Specified:

A.3.1.1 A total of three successive 200g $^{+20}_{-0}$% peak shock impulses shall be applied in each of six positions along three mutually perpendicular axes. The duration of the shock impulse shall be two to three milliseconds with the peak acceleration at one to two milliseconds.

A.3.2 Test Conditions:

A.3.2.1 The test article shall be operating prior, during, and after the shock test. External power shall be utilized.

A.3.3 Measurements and Limits:

A.3.3.1 The operation of the system shall be approved by the Systems Group Leader of the Telemetering Department from comparison of operation prior to and after the test. The operation of the out-of-station electronic subassemblies shall be approved by the Components Group Leader of the Telemetering Department from comparison of operation prior to and after the test. Performance will be determined on the basis of permanent damage and operation change caused by the test.

A.3.4 Records:

A.3.4.1 Normally, tests will be performed in each of six directions along three axes but the test may be reduced to three successive shocks in one direction (along axis of flight) for any system and/or electronic subassembly as approved by either the Systems or Components Group Leader. Systems test deviations will be highlighted in the Vehicle Engineer's Ship's Letter portion of the Instrumentation Systems Bird Book, Part II (Instrumentation Hardware and Test Data).

A.4 Quality Assurance Provisions

A.4.1 The Quality Control Department shall verify that the tests were performed.

A.5 Preparation for Delivery

A.5.1 Does not apply.

B. 7-3-58